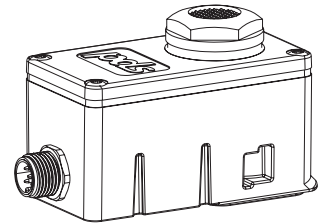


Digital amplifier electronics PDS1

- for 1 or 2 proportional solenoids with DIN plug
- protection class IP 65
- analogue setpoint signal 0...±10V / 0/4...20mA
- M12 connector plug
- adjustable via USB by means of new Wandfluh PASO2


DESCRIPTION

Compact amplifier for direct mounting on the solenoid. Pluggable on solenoids according to DIN EN 175301-803, type A. Protection class of the amplifier is IP 65. For 1 or 2 proportional solenoids. Setpoint signal type switchable via PASO2 parametrisation software (voltage/current).

FUNCTION

The setpoint from any source is converted into the desired solenoid current. The scaling of the setpoint and solenoid current are freely optimisable. Parameters such as ramp and dither are easy to set with the PASO2 via USB. This allows the function of the amplifier to be optimised for the valve application.

APPLICATION

The amplifier is particularly suitable for controlling proportional valves. The applications are found in both industrial and mobile hydraulics for the smooth and controlled operation of hydraulic drives. The M12 plug allows easy connection using standard M12 cables.

TYPE CODE

P DS1 5 0 ☐ D8 0 - A A / ☐ # ☐

Plug

Digital Smart

Adjustable with PASO2 via USB

Basic amplifier

1 solenoid execution 1
2 solenoid execution 2

Supply voltage 8...32V

Analogue input voltage / current

12 bit resolution

Analogue setpoint

Solenoid cable	not specified:	only 1 solenoid / without solenoid cable
	095:	solenoid cable 95 mm for WDPFA04 with VDE37
	110:	solenoid cable 110 mm for WDPFA06 with WDE45
	135:	solenoid cable 135 mm for WDPFA10 with WDE64
	Option:	other lengths available on request

Design index (subject to change)

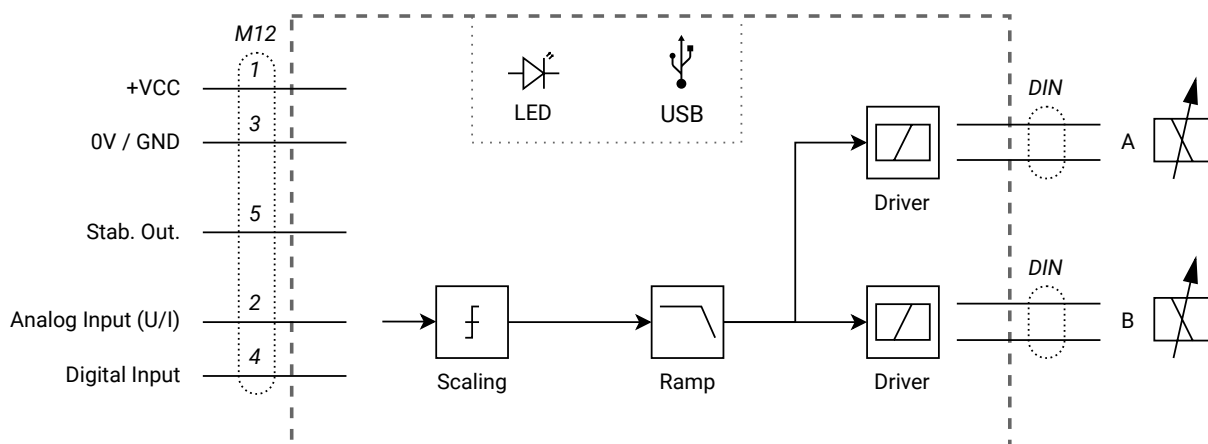
GENERAL SPECIFICATIONS

Execution	Pluggable	on solenoid with DIN plug DIN EN 175301-803, type A (ISO 4400)
Connections	Connection plug Solenoid plug Parametrisation	M12 plug (male) 5-pole only for 2-solenoid execution, PUR, 2 x 0.75 mm ² , DIN plug USB (plug type C)
Dimensions	See drawing on page 3	
Ambient temperature	-40...+85 °C	(Derating see operating manual)
Installation	1 centre bolt	Captive screw M3x10, tightening torque 0.4 Nm

ELECTRICAL SPECIFICATIONS

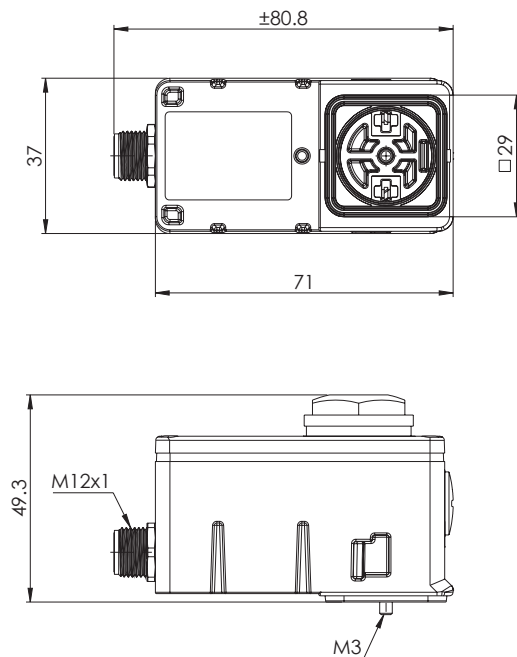
Protection class	IP 65 acc. to EN 60 529 (on round Wandfluh slip-in coils)	Dither	Frequency adjustable 4...500 Hz Factory setting 70 Hz
Supply voltage	+VCC 8..32 VDC		Level adjustable 0...400 mA Factory setting 200 mA
Fuse	Inert	Temperature drift	<1 % at $\Delta T = 40^\circ\text{C}$
No-load current	approx. 20 mA	Digital input	1 input high-active Switching threshold high > 4 V Switching threshold low < 1 V
Maximum current consumption	No-load- + 1x max. solenoid current	Ramps	Adjustable 0...500 s
Analogue input	1 input Voltage / current (switchable via parameter) 0..+/- 10V or 0/4..20mA	LEDs	Function green Error red
Resolution	12 bit	EMC	
Input resistance	Voltage input >100 k Ω Load for current input = 124 Ω	Immunity	EN 61 000-6-2
Stabilised output voltage	5 VDC max. load 20 mA	Emission	EN 61 000-6-4
Solenoid current:			
• Minimal current $I_{\min}$	Adjustable 0... $I_{\max}$ mA Factory setting 50 mA		
• Maximal current $I_{\max}$	Adjustable $I_{\min}$...2300 mA Factory setting 700 mA		

BLOCK DIAGRAM

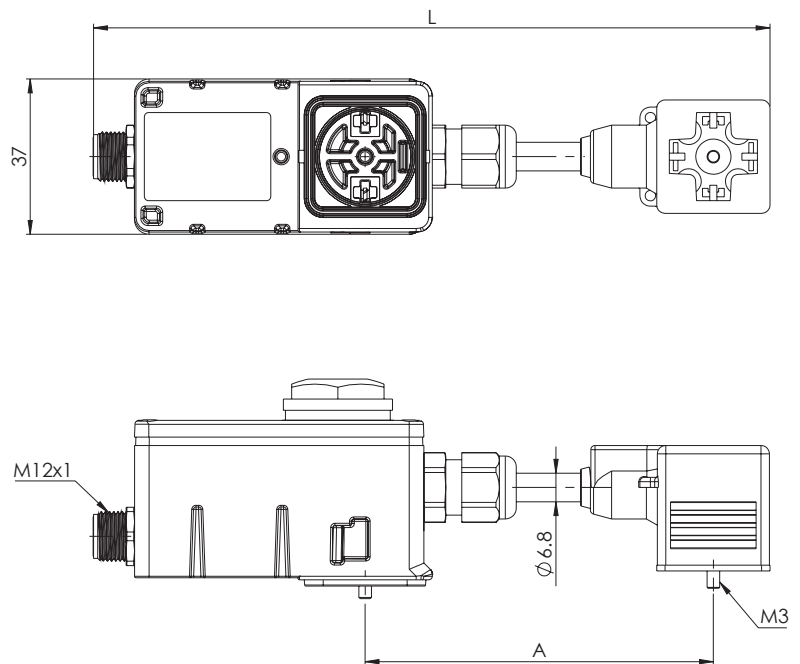


DIMENSIONS

1 solenoid execution



2 solenoid execution



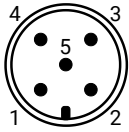
Length specifications of the 2 solenoid execution (other lengths available on request)

Type	Dimension A	Dimension L	Suitable valve type
PDS1502D80-AA/095mm	95 mm	173.31 mm	WDPFA04 with VDE37
PDS1502D80-AA/110mm	110 mm	188.31 mm	WDPFA06 with WDE45
PDS1502D80-AA/135mm	135 mm	213.31 mm	WDPFA10 with WDE64

CONNECTOR ASSIGNMENT

Connection plug

M12 plug 5-pole male A coded

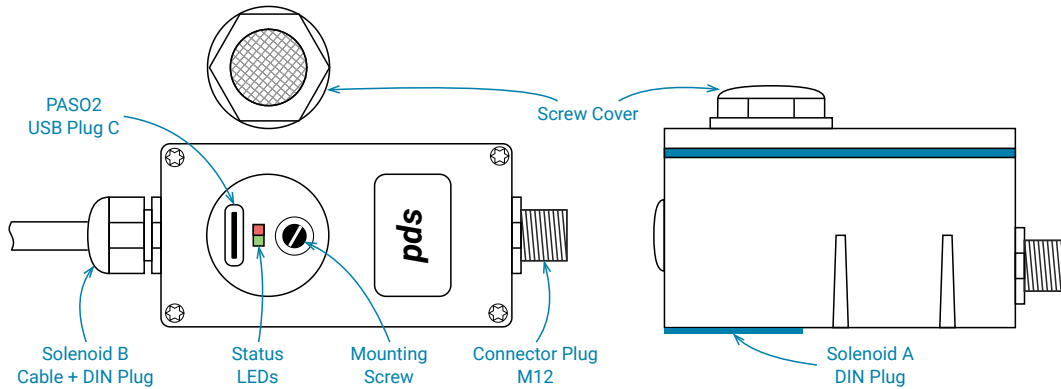


- 1 Supply voltage +VCC
- 2 Setpoint signal
- 3 Supply voltage 0V/GND
- 4 Digital input
- 5 Stabilised output voltage *

* can be activated via PASO2

(Some M12 distributor boxes have the earth connection on pin 5 → Short-circuit hazard!)

DISPLAY AND CONNECTION ELEMENTS



START-UP

Information regarding installation and commissioning are contained in the information leaflet supplied with the amplifier electronics and in the operating instructions.

Additional information can be found on our website:
www.wandfluh.com

Free of charge download:

- Operating instruction
- Wandfluh parametrisation software PASO2

ADDITIONAL INFORMATION

Wandfluh electronics in general	Wandfluh documentation
Proportional spool valves	Register 1.13
Proportional pressure valves	Register 1.10
Proportional flow valves	Register 2.3
	Register 2.6

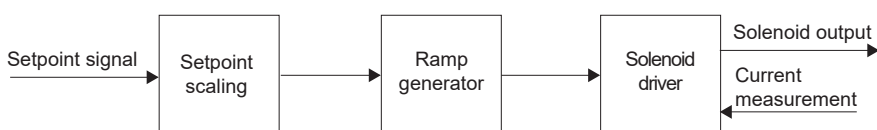
ACCESSORIES

Flat gasket (required only for square Wandfluh solenoids)	Art.No.	106513
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ADJUSTMENTS

The PDS1 has a USB interface. The PASO2 parametrisation software can be used to analyse the functions of the PDS1 and set all parameters. Detailed information on the available settings can be found in the operating instructions.

FUNCTION DESCRIPTION





PDS1-APMLIFIER

Setpoint scaling

The setpoint can be specified as a voltage or current signal. The scaling, the dead band range or any inversion can be freely set.

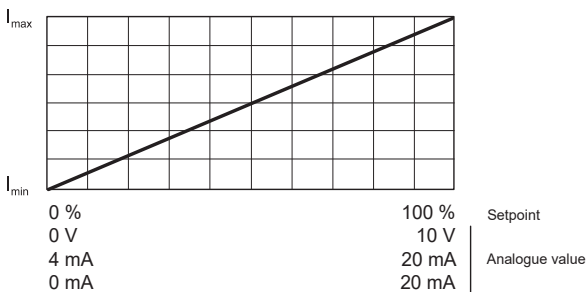
Ramp generator

Two linear ramps for up and down are available which can be adjusted separately. This can be used to realise a fine start-up behaviour or to prevent pressure surges in the event of setpoint changes.

Functional example

The solenoid is activated depending on the set setpoint signal (e.g. 0...10V corresponds to 0...100 % setpoint which in turn corresponds to I_{min}... I_{max} of the solenoid driver).

Example PDS1 with 1 Solenoid



Solenoid driver

One or two solenoid current outputs are available. The dither signal is superimposed, whereby the dither frequency and dither level can be set separately. The minimum (I_{min}) and maximum (I_{max}) current can be adjusted. The solenoid current is measured and regulated to compensate for the temperature effects of the coil.

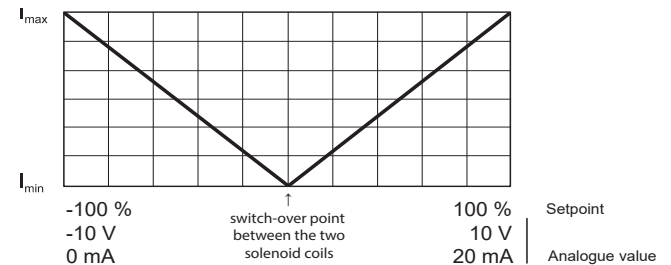
Channel enabling

The channel, i.e. the solenoid output, can be enabled or disabled as a safety function.

Enable can be configured by using PASO2 as follows:

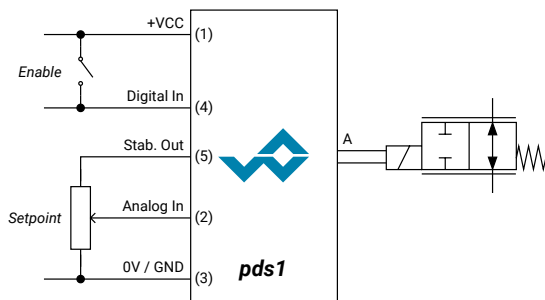
- on
- off
- external (digital input)

Example PDS1 with 2 Solenoids



CONNECTION EXAMPLES

Connection example 1 solenoid with stable output and potentiometer



Connection example analogue with control from PLC

